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Idaho Transportation Department

Today's News Briefs

Source: Other media

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4/17/2012

(Nevada) Hydrogen station to fuel cars, but sale of byproducts is key

CARSON CITY, Nev. - A hydrogen-fueling station planned in Carson City drew plenty of media attention last week, but developer H2 Technologies Group Inc. of Sparks thinks the station can be profitable even if it never delivers a bit of hydrogen for vehicle fuel.

How?

The electrolyzer technology at the station will separate water into its component elements, hydrogen and oxygen. While hydrogen-fueled vehicles are all the rage as a method of reducing tailpipe emissions, H2 Technologies is contracting with a supplier of industrial gases to sell oxygen — the waste product — at wholesale for medical and industrial uses.

"That secondary market makes the station profitable from day one," says Gary Lord, a principal in H2 Technologies. "We create copious amounts of oxygen." The Nevada State Office of Energy, which has a big interest in development of renewable fuels, has approved a \$1.1 million low-interest loan to get the H2 Technologies project.

Lord says the state loan provides important credibility to the project as its backers now begin to assemble private investors to bring the station to reality.

H2 Technologies executives say they hope to begin construction within 90 days. The station is likely to be completed within six months after construction starts and is operational within a year.

The facility would be at the Carson Valley Oil bulk plant owned by Ramos Oil Co. Inc. near Arrowhead Drive and Goni Road, just north of the Carson City Airport.

Aesthetic Engineering and Aspen Engineering, both of Reno, are designing the fueling station.

H2 Technologies is using a part of the money it's raising from the state and private investors to help resolve the classic chicken-and-egg problem that faces the hydrogen-fueled transportation industry.

Without hydrogen-powered vehicles, developers have no reason to build fueling stations. But without fueling stations, vehicle buyers have no reason to purchase hydrogen vehicles.

H2 Technologies is buying a small fleet of hydrogen-powered vehicles — currently, four converted Toyota Prius models and two Ford Focus conversions — that it will lend to motorists in hopes they'll become enthralled with hydrogen-powered vehicles.

Then there's the matter of figuring a price for hydrogen sales at the pump.

The cost structure is simple, Lord says. The capital cost of a small station with its electrolyzers and compressors, the purchase of about 100 gallons of water a day and the big expense of electricity to drive the separation of water into hydrogen and oxygen.

At that, along with the appropriate state and federal taxes, hydrogen from the plant likely would sell at about \$10 a kilogram, Lord says. Assuming that hydrogen-powered vehicles can travel 60 to 70 miles on a kilogram of hydrogen, the \$10 price is competitive with gasoline, Lord says. And the only tailpipe emission is water vapor and a little hydrogen.

The price could be reduced substantially if power is available from a renewable source such as a solar or

geothermal installation, he says. One hundred gallons of water through the station's electrolyzers, Lord says, would be enough to fuel about 80 cars a day.

Assuming the Carson City fueling station is successful, H2 Technologies has its eye on the California market where clean-air mandates by the state government are bringing substantial attention to hydrogen as an alternate fuel.

Robert Nellis, a program manager with the Nevada State Office of Energy, said state officials are interested both in the renewable-energy production of hydrogen fueling stations as well as the possibility that they will create jobs.